

**Amendments to the Drawings:**

The attached two sheets of drawings includes changes to Figures 1 and 5, which have been amended to include the previously omitted references.

Attachment: Replacement Sheets

## **REMARKS**

Claims 1-13 are pending in this application. Claims 1-13 stand rejected under 35 U.S.C. § 101 and under 35 U.S.C. § 103(a). Applicants have amended Claim 1 to more particularly describe the invention. Applicants have cancelled Claims 2-6. Applicants request reconsideration of the rejections in view of the amendments to the claims and the following remarks.

### **Rejection of Claims 1-13 under 35 U.S.C. § 101**

The Office Action rejected Claims 1-13 under 35 U.S.C. § 101 because the claimed invention is directed to non-statutory subject matter. Specifically, the Office Action stated that the invention fails to produce a useful, concrete, and tangible result by classifying messages. Applicants have amended Claim 1 to recite that the system blocks delivery of messages classified as spam to their intended recipient. Accordingly, Claim 1 is directed to statutory subject matter and falls within 35 U.S.C. § 101.

### **Rejection of Claims 1-13 under 35 U.S.C. § 103(a)**

The Office Action rejected Claim 1 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,161,130 ("Horvitz ") in view of U.S. Patent No. 6,321,267 ("Donaldson "). Applicants note that with respect to Claims 1-9 and 13, only Horvitz is cited as disclosing the elements of the claims without discussion of a motivation to combine or other § 103 factors. Accordingly, Applicants address the rejection of Claims 1-9 and 13 as based only on Horvitz rather than on a combination of Horvitz with Donaldson.

With respect to Claim 1, the Office Action stated that Horvitz teaches a method for classifying messages comprising recognizing patterns in messages and applying a plurality of machine learning techniques responsive to the recognized patterns in order to classify the message. Applicants have amended Claim 1 to recite the limitations of Claim 6 and any intervening claims (Claims 4 and 2). Accordingly, Claim 1 now includes all limitations previously recited with respect to Claim 6. Regarding Claim 6, the Office Action stated that Horvitz teaches two levels of neural networks including a first level that determines likely good and likely spam and a second level that determines if a likely good is good or bulk and if a likely spam message is spam or bulk by reciting discussion in Horvitz regarding subclasses of spam. Applicants disagree with the office action that

Horvitz recited a cascading application of neural network analysis by application of three neural networks to messages or the introduction of a third category of messages, as recited by amended Claim 1

Horvitz does not recite the two stage message analysis of the present invention. Amended Claim 1 recites that message data is first analyzed to determine if corresponding messages are likely good or likely spam by applying a first level neural network (primary level). Based on the results of this analysis, secondary level neural networks analyze message data (secondary level). A first secondary level neural network analyzes data from messages categorized by the first level as likely good to determine if corresponding messages are good or bulk. A second secondary level neural network analyzes data from messages categorized by the first level as likely spam to determine if corresponding messages are spam or bulk. Accordingly, the final classification is the result of application of three separate neural networks to message data, one network applied to all data and two networks to different subparts of the data. On the other hand, in Horvitz a single arrangement of neural network is used to decide between categories of spam or legitimate. Col. 4, ll. 40-53. Although Horvitz discusses using a neural network that includes several network with interconnections and relations in Col. 15, ll. 17-29, it does not recite the specific interconnection and relationships of Claim 1. In the discussion of Claim 5, the Office Action mentions the term "boosting" from Horvitz to imply that the discussed neural network somehow confirm findings from a prior network. However, the term "boosting" is only used to indicate that different sub-networks have different weight in the final determination, without any indication that the "boost" is to confirm the findings of another network. Additionally, the Office Action states that the suggestion in Horvitz Col. 15, ll. 26-29, stating that a network output can be fed as input to another network, discloses the classification of Claim 5. However, the discussion of Horvitz is of using the output as one of the input to another classifier, not dividing the ultimate analysis between two independent classifiers. The result of the suggestion of Horvitz is one classifier at the end of the chain (see Figure 3A), while the present invention provides two distinct neural networks. Accordingly, Horvitz does not recite the interconnection of neural networks recited by Claim 1.

There is no recitation in Horvitz of an intermediary state of "likely" which is used to divide the vector data between two different follow-up neural network analyzers. The only reference to follow-up analysis in Horvitz is to classify spam into subcategories. Col. 5, ll. 16-21. There is no second level analysis for message already decided as legitimate by the neural network of Horvitz. Thus, Horvitz only recites one level of analysis, spam or legitimate, while the present invention recites two levels of analysis.

Moreover, the Office Action stated that the commercial spam subclass of Horvitz is equivalent to the bulk category of the present invention. Applicants disagree that the bulk category of the invention is merely a subclass of spam, as discussed below. Furthermore, even assuming that the bulk category is the same as the commercial spam subclass, the bulk category of the invention is populated from messages previously believed to be good as well as those previously believed to be spam, while the commercial spam subcategory of Horvitz is only taken from the spam message group. Accordingly, Horvitz does not disclose the neural network arrangement or its operation recited by amended Claim 1.

Horvitz does not recite a "bulk" message category, as recited by Claim 1. The present specification discusses the difficulties inherent in precisely determining whether messages are good or spam because of the sophistication of spam senders as well as the nature of good messages which may resemble spam. Accordingly, the present invention introduces a third category, namely "bulk." The bulk messages are those on the borderline between spam and good messages. Therefore, to increase the precision of "spam" and "good" determinations, the bulk category is introduced. Accordingly, bulk messages are taken from both messages classified as good, to increase reliability of message identified as desired, and from those messages classified as spam to increase reliability of messages discarded from delivery to recipients. Hence, both subclasses of good and spam need to be reviewed for bulk messages to provide the benefits of higher reliability, not only the spam class. Claim 1 recites review of both subclasses, namely the "likely spam" and "likely good" subclass. Horvitz suggest review of the spam classified messages only to determine if they contain commercial spam. Therefore, Horvitz does not provide bulk category messages as recited by Claim 1.

For at least the reasons provided above, Claim 1 is allowable over Horvitz or over the combination of Horvitz and Donaldson.

Claims 7-13 depend from Claim 1 and are therefore allowable over Horvitz and Donaldson for at least the reasons provided above with respect to Claim 1.


### SUMMARY

In view of the forgoing supporting remarks, Applicants respectfully request allowance of pending Claims 1 and 7-13. This application is now believed to be in a condition for allowance.

If the Examiner wishes to direct any questions concerning this application to the undersigned Applicants' representative, please call the number indicated below.

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